CLOSURE FOR DUST GUARD POCKET OF RAILWAY CAR JOURNAL BOX

Filed Aug. 6, 1954

References cited

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

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Oct. 1, 1957

2,808,276

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Patent specification and diagrams.
The present invention relates to railway car journal boxes and more particularly to an improved closure for the dust guard pockets ordinarily associated with such journal boxes.

The conventional railway car journal box is usually provided with means for preventing ingress of dirt or other foreign material to the journal box where the axle journal protrudes into the journal box, such means being generally in the form of a dust guard shield surrounding the journal and retained in a dust guard pocket formed in the journal box casting. These dust guard pockets are open at their upper ends, thus enhancing the likelihood of dust and other foreign matter entering into the journal box through the open upper end of the pocket.

Heretofore it has been customary to seal off the open ends of the dust guard pocket by a thickness of tar paper which overlaps the outer edges of such pocket and which is sealed to the journal box casting by the application of molten tar or other suitable adhesive. Alternatively, it has been the custom to close the open ends of these pockets by suitable "stoppers" in the form of elongated tapered blocks or pieces of wood shaped to fit the inner side walls of the slots. In the former instance the use of tar paper and the sealing thereof with molten tar is a messy procedure and also the paper is subject to subsequent puncture or rupture. In the latter instance the wooden closures are readily dislodged and their fit into the slot opening is not always uniform and tight, especially since they are subject to shrinkage and warping in time.

The present invention is designed to overcome the above noted limitations that are attendant upon the use of conventional means for closing off the open ends of dust guard pockets and toward this end it contemplates the provision of a compact unitary closure plate which may be inexpensively made and which is in the form of a sheet metal stamping, the plate having associated therewith a plurality of centering devices which serve to align the plate over the slot opening as well as to provide a locking means for holding the closure plate in position after it has been installed over the open end of the pocket.

The provision of a closure of the type briefly outlined above being among the principal objects of the invention, another object is to provide such a closure wherein the various parts thereof are capable of assembly upon one another by mating operations, thus dispensing with the use of fastening bolts, screws and the like and materially contributing toward a reduction in the cost of manufacture.

Another object of the invention is to provide a closure of this character which is of the so-called "push-in" type wherein the closure plate may be aligned with the slot opening and the centering and fastening devices pushed into the open end of the pocket so as to bring the closure plate to its home position, after which the closure as a whole is automatically and firmly locked in place.

The invention is susceptible to modification and in some forms thereof sealing gaskets are employed between the cover plate proper and the journal box casting while in other forms such gaskets are not required. In either event however the essential features of the invention are always preserved.

In the accompanying single sheet of drawings several embodiments of the invention have been shown.

In these drawings:

Fig. 1 is a sectional view taken substantially longitudinally and vertically through a railway car journal box to which the improved closure member in a preferred form thereof has been applied;

Fig. 2 is an enlarged fragmentary plan view of the right end portion of the structure shown in Fig. 1;

Fig. 3 is a further enlarged sectional view taken substantially along the line 3--3 or Fig. 2;

Fig. 4 is a sectional view similar to Fig. 3, but taken substantially along the line 4--4 of Fig. 2, and

Fig. 5 is a view similar to Fig. 4 but showing the anchoring disc buckled to permit removal of the closure member.

Referring now to the drawing: A conventional journal box is designated in its entirety at 10 and is cast integrally with portions 11 and 12 of a truck side frame. The journal box 10 is provided with an end opening 13 to be closed by the usual hinged journal box lid 13a as shown. A circular opening 14 formed in the journal box receives the journal 15 of a wheel axle 16. The journal 15 is formed with the usual dust guard bearing surface 17 which is surrounded by a dust guard 18. This element may be in the form of a rectangular plate of wood which fits movably in the rectangular slot 20 of a dust guard pocket and is formed with a circular central opening 18 of a diameter corresponding to the diameter of the dust guard bearing 17 of the axle. The dust guard 18 is intended to function to prevent the ingress of dirt or other foreign material to the interior of the journal box.

In the journal box assembly shown, the load of the railway car is transferred by the side frames 11 and 12 to the journal 15 and the load is distributed by a wedge 21, which underlies the top wall 22 of the journal box, through a journal bearing or "brass" 23 having a liner 24 which bears against the top of the journal 15.

The journal bearing 23 is designed to permit a limited amount of endwise movement of the journal 15, the extent of this movement being determined by a shoulder 25 and collar 26 formed on the journal. The details of the wedge 21 and journal bearing 23 and the manner whereby they are centered within the journal box structure have not been disclosed herein since their disclosure is merely incidental to disclosure of the entire journal box assembly with which the dust guard pocket closure of the present invention has been illustrated. The journal box 10 is packed with oil-soaked waste 27 in the usual manner, the waste making contact with the underneath side of the journal so that the rotating journal will wipe a film of lubricant from the waste to maintain the cooperating bearing surfaces on the journal and liner 24 adequately lubricated.

As shown in Figs. 1 and 2, the upper end of the dust guard pocket 20 is open as at 28 and is generally of elongated rectilinear design and, in the absence of a closure therefor presents a relatively large area through which airborne grit and settled dust may find its way to the interior of the journal box. According to the present invention, to prevent the entrance of such dust into the dust guard slot 20, a closure assembly of novel design and construction is provided. The said closure is designated in its entirety at 30 and includes a closure plate 31 of rectangular design which may have rounded corners as at 32 and which preferably is formed with a pair of spaced longitudinally extending reinforcing ribs 33. The overall dimensions of the plate 31 is somewhat greater than the overall dimensions of the rim or opening 28 of
the dust guard pocket 20 so that when the plate 31 is centered over the latter it completely covers the said opening and overlaps the edges thereof. The edge regions of the plate 31 may rest upon the flat surface 34 of the casting 10 in the immediate vicinity of the slot opening but preferably a gasket 35 of cork, neoprene or other suitable gasket material is interposed between the plate 31 and surface 34.

The plate is adapted to be maintained in its position of closure over the opening 28 by means of a plurality of centering and anchoring devices which, according to the present invention, may assume various forms. One form of such an anchoring device is shown in Fig. 3 at 36 and another form is shown at 37 in Fig. 4.

The form of anchoring device shown at 36 comprises a hollow tubular post 40 which depends from the plate 31 adjacent one end thereof and medially between the longitudinal edges of the plate and which is secured to the plate by means of a plurality of ears 41, preferably four in number, which project through slots 42 formed in the plate 31 and which are bent laterally as shown in Fig. 3 so as to overlie the upper face of the plate and hold the post firmly in position. The lower end of the post 40 carries a circular friction disk 43 of slightly dished configuration and having a normal diameter slightly in excess of the width of the dust guard pocket opening 28 so that when the disk is pushed downwardly into the pocket the periphery of the disk will frictionally engage the side walls thereof at diametrically opposed points and in tangential fashion so as to resist upward movement of the disk in the pocket. The disk is secured to the lower end of the post 40 by means of attaching ears 44 formed on the post and slots 45 formed in the disk, these ears and slots being similar to the ears and slots 41 and 42, respectively.

It has been found that two anchoring devices, suitably located adjacent the opposite ends of the plate 31, are sufficient to retain the plate centered on the pocket opening 28 but, if desired, additional devices arranged in straight-line fashion may be employed. It will be seen that by virtue of the slight upwardly dished shape of the disks 43 a small amount of flexing of the disk will be permitted during installation of the closure member 30 over the open upper end of the pocket 20 as the anchoring devices 36 and 37 are pushed into the pocket. However, withdrawal of the devices 36—37 is resisted by virtue of the frictional engagement of the edges of the disks 43 with the side walls of the pocket 20 and also by the tendency of the sharp edges of the disks to dig into the walls of the pocket. However, when it is desired to remove the closure member 30 from the pocket opening such removal may be accomplished by the application of force, utilizing a suitable prying tool which is inserted between the cover plate 33 and surface 34. The application of sufficient upward force on the cover plate 33 will cause the disks 43 to buckle in the opposite direction as shown in Fig. 5 and thereby permit ready removal of the closure structure.

The anchoring device employed for centering the cover plate 31 may assume the form shown at 37 in Fig. 3 wherein the post 50, instead of being tubular, is of solid cylindrical construction and where the ends thereof are of reduced diameter as shown in dotted lines at 51 to provide seating shoulders 52 which bear against the underneath side of the plate 31. The reduced ends 51 are riveted as at 53 over the top of the plate and beneath the bottom of the disk to retain the post on the plate 31 and to retain the disk 43 on the post 50.

The invention is susceptible to further modification and it is obvious that the various centering posts illustrated herein may be secured to their respective cover plates and disks by means other than that shown, as for example, by welding, brazing, or the like. However, where tubular posts are concerned the provision of the ears 41 and slots 42 have been found to be extremely practical from a manufacturing standpoint. Similarly, where solid posts are employed, the riveting operation is preferable. Only insofar as the invention has been particularly pointed out in the accompanying claims is the same to be limited.

I claim:

1. A railway car journal dust guard pocket closure comprising, in combination, a generally flat elongated rectangular cover plate adapted to be positioned over an open upper end of the pocket to seal the same against the ingress of dirt and the like, an anchoring device carried at each end of said cover plate, each anchoring device comprising a post depending from the underneath side of the cover plate, and a flexible metal disc of convex-concave configuration carried at the lower end of each said post with its convex surface facing downwardly and having a continuous and relatively sharp circular edge for frictional biting engagement with opposite inner side walls of the pocket to prevent dislodgement of said cover plate; the flexibility of said disc being such as to facilitate buckling thereof upon the application of force to remove it from its applied position.

2. A railway car journal dust guard pocket closure as defined in claim 1 characterized in that said depending post is a hollow tube provided at its opposite ends with bendable tabs and in that the said cover plate and said disc are each formed with apertures for receiving said tabs.

3. The combination structure as defined in claim 1 characterized in that a resilient gasket is positioned beneath the underneath side of said cover plate and is adapted to sealingly engage the cover plate and the portions of the walls defining the upper end of said dust pocket.

References Cited in the file of this patent

UNITED STATES PATENTS

849,415 McGowan 4, 9, 1907
2,152,580 Barrows 28, 3, 1939
2,258,852 Horn et al. 14, 10, 1941
2,269,198 Hicks 6, 1, 1942